

Human Anatomy and Physiology (Honors)  
Academic year 2011-12  
Maybeck High School  
Shyam Sundar

### **Course Outline:**

This course provides an advanced elective for students that have completed a year of biology and chemistry. The major focus of the course will be on relating structure of organs to their functions and on understanding the major mechanisms of regulation of bodily functions. The class will provide students with the basic biochemistry, cell biology, histology, embryology and pathology of organs and organ systems of the body. This is an integrated platform of study involving various concepts from chemistry and biology especially in the physiology area. Labs and hands on activities will cover at least 30% of total class time and will consist of histological, and gross organ observation, as well as hypothesis driven experiments for physiology. The class will cover basic biochemistry, cell biology, histology, integument, bones, muscle, nerves, cardiovascular, respiratory, immune, digestive, excretory, endocrine, and reproductive systems.

### **Course Outcome:**

Students are expected to

1. recognize and understand anatomical and physiological terminology
2. apply the concept of homeostasis to human physiological activity.
3. Know major organic and inorganic chemicals as they relate to the human body.
4. describe cellular structure and cellular activity.
5. discuss anatomical and physiological features of the integumentary, skeletal, muscular, nervous and sensory systems.
6. evaluate select pathological conditions as they relate to normal functioning of the above-named systems.

7. prepare for the subsequent course (BSC 1086) by paying particular emphasis to general features of biochemical and cellular physiology, as well as neuronal integration of various body processes.

Text: Marieb and Hoehn, Human anatomy and physiology, 8<sup>th</sup> Ed, 2010, Pearson Ed.

**Grading:**

Homework: 20% Lab reports: 15% 5 Exams: 45% Final Exam 20%

Course Policies

1. Late homework and late labs will be accepted only three times all semester and will have to be accompanied by a note from the parent stating the excuse. There will be a grade penalty for lates, for each day's delay, 10% of the grade will be deducted.
2. You may miss no more than 2 exams in a semester. I will need a note from parent as well as a doctor's note if you were sick.
3. Exams will be short answer format. If you perform poorly (D or F) on exams, you may do the correction work for a maximum of 50% of the original grade. This you may do for a maximum of 3 exams per semester. This CANNOT carry over to the spring.
4. Final exams will be comprehensive.
5. More than three lates and or no turn-ins will result in information to your parent as well as to the Rules Committee for further action.

Tentative Lecture Schedule

<u>Lecture Schedule (Tentative)</u>	<u>Lab</u>
9/22-9/23	Introduction, Anatomical Planes
9/26-9/30	Scientific Method      Anatomical Orientation
10/3-10/7	Macromolecules      Macromolecules
10/10-10/14	Cell biology/Histology      Histology
10/17-10/21	Integument      Integument
10/24-10/28	Bone Physiology      Bone Histology
10/31-11/4	Axial Skeleton      Axial Skeleton
11/7-11/11	Appendicular Skeleton      Appendicular Skeleton
11/14-11/18	Arthrology      Joints Articulation
11/28-12/2	Muscles      Muscle fatigue lab
12/5-12/9	Muscles      Muscles of the body
12/12-12/16	Muscles      Muscle AP
1/2-1/6	Endocrine System      Endocrine Glands

1/9-1/12	Review for Final	Review for Final
1/30-2/3	Nervous System	Action Potential lab
2/6-2/10	Nervous System	Daphnia lab
2/13-2/17	Nervous System	Brain Dissection
2/20-2/24	Hematology	Blood
2/27-3/2	Heart	Heart Dissection
3/5-3/9	Blood Vessels	Rat Dissection
3/12-3/16	Respiratory System	Acid Base Balance
3/19-3/23	Digestive System	Nutrition Lab
4/16-4/20	Excretory System	Urinary system dissection
4/23-4/27	Excretory System	Urinalysis
4/30-5/3	Male Reproductive System	Male Anatomy Slides
5/6-5/10	Female Reproductive System	Rat estrous cycle
5/14-5/18	Female Reproductive System	Histology
5/21-5/25	Embryology	Slides
5/28-6/1	Final Review	